



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/802,188

03/08/2001

Kazuhiko Takaishi

3408.65 517

5899

24978

7590

06/25/2004

GREER, BURNS & CRAIN  
300 S WACKER DR  
25TH FLOOR  
CHICAGO, IL 60606

EXAMINER

DAVIDSON, DAN

ART UNIT

PAPER NUMBER

2651

DATE MAILED: 06/25/2004

02

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/802,188

Applicant(s)

TAKAISHI, KAZUHIKO

Examiner

Dan I Davidson

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 1 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 14, 2004 has been entered.

***Specification***

2. The abstract of the disclosure is objected to because of multiple informalities. Correction is required. See MPEP § 608.01(b). Please correct the abstract as follows:

(1) On page 34, line 4, the second instance of "position" should be replaced with --servo--.

(2) On page 34, line 5, "position" should be replaced with --servo--.

(3) On page 34, line 6, "even" should be deleted.

(4) On page 34, line 6, "The" should be replaced with --A--.

(5) On page 34, line 7, "a" should be deleted.

(6) On page 34, line 7, "disk 1" should be replaced with --disks--.

(7) On page 34, line 7, "the position signal" should be replaced with --servo signals--.

(8) On page 34, line 8, "3a through 3d" should be deleted.

(9) On page 34, line 9, "recording disk 1" should be replaced with --storage disks--.

Art Unit: 2651

(10) On page 34, line 9, "5" should be deleted.

(11) On page 34, line 10, "11" should be deleted.

(12) On page 34, line 11, "position" should be replaced with --servo--.

(13) On page 34, lines 11-12, "the recording" should be replaced with --a storage--.

(14) On page 34, line 12, "the" should be replaced with --a--.

(15) On page 34, line 13, "11" and "6" should be deleted.

(16) On page 34, line 14, the last instance of "the" should be replaced with --a--.

(17) On page 34, line 15, "detection" should be replaced with --servo gate--.

(18) On page 34, line 15, "the position" should be replaced with --a servo--.

(19) On page 34, line 16, "position" should be replaced with --servo--.

(20) On page 34, line 17, "11" should be deleted.

(21) On page 34, line 18, "position" should be replaced with --servo--.

(22) On page 34, line 20, "position" should be replaced with --servo--.

3. The disclosure is objected to because of the following informalities:

(1) On page 1, line 7, "a positioning signal" should be replaced with --servo signals--.

(2) On page 1, line 9, "read information from or" should be deleted.

(3) On page 1, lines 19-20, "(position signals)" should be deleted.

(4) On page 1, line 21, "centre" should be replaced with --center--.

(5) On page 2, line 1, "a" should be deleted.

(6) On page 2, line 2, "disk" should be replaced with --disks--.

- (7) On page 2, line 3, "(position signals)" should be deleted.
- (8) On page 2, lines 4, 6, 7, and 27, respectively, "disk" should be replaced with -  
-disks--.
- (9) On page 2, line 9, the second instance of "signal" should be replaced with --  
signals--.
- (10) On page 2, line 24, "centre" should be replaced with --center--.
- (11) On page 2, lines 26-27, "a servo signal is" should be replaced with --servo  
signals are--.
- (12) On page 6, lines 2, 5, 9 (twice), 14, 17, 20, 22, and 23, respectively,  
"position" should be replaced with --servo--.
- (13) On page 6, line 6, "the" should be replaced with --a--.
- (14) On page 6, lines 8, 16, and 19, respectively, "detection" should be replaced  
with --servo gate--.
- (15) On page 6, line 12, "head position" should be replaced with --servo--.
- (16) On page 6, line 13, "detection signals" should be replaced with --servo gate  
signal--.
- (17) On page 7, lines 1, 13, 17, 18, 25, and 27, respectively, "position" should be  
replaced with --servo--.
- (18) On page 7, lines 4 and 21, respectively, "detection" should be replaced with  
--servo gate--.
- (19) On page 8, line 6, the first instance of "in" should be replaced with --is--.

(20) On page 10, line 4, "the magnetic disk" should be replaced with --magnetic disks--.

(21) On page 10, line 6, "track in this magnetic disk" should be replaced with --tracks in the magnetic disks--.

(22) On page 10, line 9, "signal" should be replaced with --pattern--.

(23) On page 10, line 10, "position signals" should be replaced with --servo bursts--.

(24) On page 10, lines 12, 13, and 15, respectively, "disk" should be replaced with --disks--.

(25) On page 10, line 14, "a desired track" should be replaced with --desired tracks--.

(26) On page 10, lines 16 and 18, respectively, "the" should be replaced with --a--.

(27) On page 10, line 18, --one of-- should be inserted prior to "magnetic".

(28) On page 10, line 19, --a-- should be inserted prior to "position".

(29) On page 10, line 20, "signal" should be replaced with --signals--.

(30) On page 10, line 27, "position" should be replaced with --servo--.

(31) On page 11, line 2, "position" should be replaced with --servo--.

(32) On page 13, line 27, "position" should be replaced with --servo--.

(33) On page 20, line 12, "position" should be replaced with --servo--.

(34) On page 26, line 25, "detection" should be replaced with --servo gate--.

(35) On page 26, lines 26 and 27, respectively, "position" should be replaced with --servo--.

(36) On page 27, line 2, "position" should be replaced with --servo--.

Appropriate correction is required.

### ***Drawings***

4. The drawings are objected to because in Fig. 3, the PosA burst is not properly depicted, and in Fig. 10, "Switch to head 0" should be replaced with --Switch to head 1--.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

5. Claims 1 and 8 are objected to for the following reasons:

(1) In claim 1, line 10, the phrase "by using a selected head" does not fit well with the rest of the claim limitation.

(2) In claim 8, line 29, "selected" should be deleted as it is not referenced earlier with respect to the switched head.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3, 5-8, 10, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tigner (US 6,208,480 B1).

Re claims 1 and 8; Tigner discloses a head positioning control method for a storage disk device (col. 2, lines 45-47) which comprises: multiple storage disks each having two recording faces (col. 2, lines 30-31), each recording face storing servo signals (col. 2, lines 40-42); a plurality of heads that read information from each of the storage disks (col. 2, lines 38-39), each head reading information from a different recording face of one of the storage disks (col. 2, lines 38-39); an actuator that moves the heads (col. 2, lines 33-36); and a control circuit that positions the heads based on the servo signals read from the recording faces of the storage disks (Fig. 1, 160, 125), the method comprising: a step of receiving a head switching cue to switch from a current head to a switched head (col. 3, lines 40-41; Fig. 3, 311; col. 5, lines 62-63); a step of synchronizing a time of a servo gate signal of the switched head for detecting



Art Unit: 2651

the servo signal with a time of the servo signal read by the switched head (col. 5, lines 64-66); and a step of reading the servo signal from an output signal of the switched head in response to the synchronized servo gate signal, and positioning the switched head according to the read servo signal (col. 2, lines 41-47), wherein the synchronizing step comprises: a step of determining a time for reading the servo signal of the switched head, in response to the head switching cue (col. 5, line 64; "FRAME OFFSET"; col. 5, lines 12-14; "timing mark detection" = "time for reading servo signal"); and a step of synchronizing the time of the servo gate signal with the determined time (col. 5, lines 64-66), and wherein the determining step comprises: a step of determining a time discrepancy between a Ref-SGATE and timing mark detection for a servo frame using a FRAME OFFSET value which inherently must come from a memory (col. 5, lines 12-14).

Tigner does not disclose a standard head or using discrepancy times between the standard head and the current and switched heads, respectively, to determine the time for reading the servo signal. However, Tigner has a Ref-SGATE that defines a servo frame boundary for all disk surfaces, and thus operates in practice in the same way as a standard head (col. 4, lines 19-21). Tigner further discloses determining the discrepancy times between the Ref-SGATE and the current and switched heads, respectively, to determine the time for reading the servo signal using a FRAME OFFSET (col. 5, lines 12-14). Although Tigner does not disclose calculating the time difference between first and second discrepancy times, since in effect the disclosure of Tigner provides the same result as Applicant, there is no patentable distinction between

Tigner and Applicant. It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to substitute a standard head for a Ref-SGATE and to derive the time for reading the servo signal in an equally valid way to that disclosed by Tigner; motivation being design choice.

Re claims 3 and 10; Tigner discloses that the time determining step comprises a step for determining the time of a value greater than one sample period for the positioning control (col. 6, lines 5-8).

Re claims 5 and 12; Tigner discloses that the synchronizing step comprises a step for time-shifting the servo gate signal for the time difference (col. 5, lines 61-65; Fig. 7).

Re claims 6 and 13; these claims are implicitly satisfied based on that disclosed above with respect to claims 1 and 8, respectively.

Re claims 7 and 14; Tigner discloses calculating, in response to the head switching cue, the time difference between the detection time for the current head and the detection time for the switched head (this is determination of FRAME OFFSET); a step of determining whether or not the time difference is shorter than one sample interval (col. 6, lines 3-5; given that it is realized that SGATE skipped, it is determined that the time difference is shorter than one sample interval); and a step of inhibiting positioning in response to the detection signal when the time difference is shorter than one sample interval (col. 6, line 7; first servo burst skipped).

Art Unit: 2651


8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I Davidson whose telephone number is (703) 308-8535. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth, can be reached on (703) 308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DID

Dan I Davidson  
June 25, 2004

  
ANDREW L. SNIEZEK  
PRIMARY EXAMINER